DOCUMENT RESUME

ED 072 111 24 TM 002 353

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TITLE The Predictive Validity of the "Minnesota Teacher Attitude Inventory." Final Report.
INSTITUTION Furman Univ., Greenville, S.C.
SPONS AGENCY National Center for Educational Research and Development (DHEW/OE), Washington, D.C. Regional Research Program.
BUREAU NO BR-1-D-019
PUB DATE Sep 72
GRANT OEG-4-71-0050
NOTE 11p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Attitude Tests; Correlation; *Measurement Instruments; *Predictive Validity; Statistical Analysis; Student Teacher Relationship; Tables (Data); *Teacher Attitudes
IDENTIFIERS *Minnesota Teacher Attitude Inventory; MTAI

ABSTRACT

The purpose of this study is the cross-validation of the predictive validity of the Minnesota Teacher Attitude Inventory (MTAI). Designed by the writer two decades ago, this instrument purposes to assess attitudes of teachers toward pupils as one important factor in teacher personality. The present study attempts to cross-validate predictive validity results obtained by the writer in an investigation he made in 1967. The two studies comprise a sample of approximately 200 Furman University teacher education students, most of whom had taken the MTAI (1) as beginning trainees, (2) as graduates, and (3) as experienced teachers. Correlating these MTAI scores with ratings made later by principal, pupils, and an outside observer provided predictive validity coefficients, in the 1967 study, of .27 and .20 for beginning trainees and inexperienced graduates, respectively. Modifying the original scoring key for more adequate use with beginners and inexperienced graduates resulted in raising these coefficients to .55 and .57. The present study resulted in coefficients of .42 (beginniners) and .58 (graduates) with use of the original key and .47 and .55, respectively, with the modified key. It is concluded that the MTAI does have predictive validity and would seem useful in conjunction with other predictive measures. Use of the modified scoring key seems desirable with beginning trainees, and, with somewhat less certainty, with inexperienced graduates. (Author)

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Project No. 1-D-019
Grant No. OEG-4-71-0050

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THE PREDICTIVE VALIDITY OF THE MINNESOTA TEACHER ATTITUDE INVENTORY

September 1972

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

National Center for Educational Research and Development
Regional Office IV
Atlanta, Georgia

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The research reported herein was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Introduction

Careful selection in the training, hiring, and promotion of teachers is of utmost importance. Generally considered as an ideal, this truth takes on realistic significance in a day when there is an abundance of teachers and teacher trainees. Teaching is an extremely complex art, and evaluative instruments designed to aid in the selection process should tap as many areas in the multi-faceted teaching personality as possible.

The Minnesota Teacher Attitude Inventory (MTAI) was designed by the writer to measure attitudes of teachers toward pupils and children in general. Emphasis was placed on tapping those essentially non-cognitive elements in the teaching personality which would seem to relate to the ability to establish and maintain rapport with children. Not a measure of permissiveness, but rather of the acceptance of children, such an instrument as the MTAI should contribute to a more effective evaluation of the whole teaching personality.

Concurrent validity of the MTAI has been well established (1, 2, 4). But its predictive validity is essential if it is to contribute to a more effective selection of teacher trainees with an eye to their later performance as successful teachers in the field. Predictive validity data, longitudinal in nature, have been lacking for the MTAI. Of this the literature has been understandably critical. In an earlier article (3) the writer described a study he made in 1967 in an attempt to determine the predictive validity of the MTAI. Correlation coefficients were obtained at that time which did indicate that the instrument had potential value for prediction.

The 1967 study presented longitudinal data for 100 teachers for each of whom three MTAI scores had been obtained: (1) at the beginning of teacher training, (2) at college graduation, and (3) after one or more years of teaching experience. Correlation of these scores with rating criteria obtained from principals, pupils, and the observer (the writer) yielded predictive validity coefficients shown in Table 3.

The issue of predictive validity in the 1967 study led directly to the question of the suitability of the MTAI for use with student teachers and graduates without professional experience. As the instrument was constructed on the basis of experienced teachers' responses to the items, its sole legitimate use should be with experienced teachers if the present published scoring key is employed. In the 1967 investigation the scoring key was modified for use with beginning teacher trainees and also for use with teacher graduates as yet without professional experience. As with the original key for experienced teachers (1) these modified "student" keys were constructed on the pragmatic basis of actual differential responses of students (in this case) who later were evaluated, as teachers, in their ability to get along with pupils. On the basis of the rating criteria, "superior" and "inferior" groups were identified. After careful analysis of all 150 item-response patterns of all subjects, and particularly of those in the extreme groups, in the three administrations of the Inventory, 102 items with modified key patterns were selected for use with beginning trainees. Eighty-five items, with modified key patterns, were selected for use with the graduates. This modification of the scoring key resulted in higher coefficients of predictive validity (See Table 3).

Even though modified scoring keys appeared to be warranted, substantial correlations among the three MTAI administrations were obtained, indicating a fairly high degree of stability in response to the items of the instrument (See Table 2). In fact, the average change in item response from the beginning of teacher training to the last administration in the field (after at least one year of experience) was only 38 percent. In other words, the average stability of item response over periods ranging from three to fifteen years was as high as 62 percent. Nevertheless, the apparent influence of both training and experience and other possible unknown factors produced item response changes serious enough to warrant consideration of modifying the scoring key for use with students and inexperienced teachers.

The present study represents an effort to cross-validate the results of the 1967 investigation. The rationale, methodology, and procedure in the two studies are identical except for the fact that in the present investigation use is made of a new sample of teachers taken from the same population. Because of time limitations and difficulty in locating additional subjects, the present study provides longitudinal data for just 96 teachers of whom only 47 had taken the Inventory on the three stated occasions. Of the total sample of 96 teachers, pre-training MTAI scores are available for 79 subjects and MTAI scores at graduation for 63 subjects. Available for all 96 subjects are MTAI scores after one or more years of professional teaching experience. Also at hand are evaluation ratings made for each of the teachers after at least one year of experience. As in the 1967 study, correlation of these ratings with each of the pre-service MTAI scores provides coefficients of predictive validity.

The 1967 study and the present study may be regarded as two phases of the same longitudinal investigation which, in totality, spans a period of twenty years. Primarily, it represents an attempt to determine the predictive validity of the MTAI. Secondarily, interest is focussed on the response stability of the instrument as this stability is affected by training and experience.

Procedure

Between the years 1952 and 1968, the MTAI was administered to some thirteen hundred Furman University [1] students at the beginning of their professional teacher education sequence of courses. For the most part, these students were in their sophomore or junior year and were enrolled in the initial course, Child Psychology or Adolescent Psychology, depending, respectively, upon professional goals of elementary or secondary teaching. The research population was limited to students contemplating a teaching career and who had had no previous courses in education.

At the time of college graduation, upon completion of the course in student teaching, the MTAI was again administered to approximately eight hundred students who had completed their teacher education and were now eligible for certification.

The third administration of the MTAI (in the 1967 study) was to 100 employed teachers who had been tested twice previously as students. In the present study (1972) 96 additional teachers from the same population comprised the sample. Forty-seven of these had taken the Inventory twice before while students. The remaining forty-nine had taken it only once before either as a beginning teacher education student or graduate without experience. The present study included 40 elementary and 56 secondary teachers who were employed in various-sized public school systems throughout the state of South Carolina. No one with less than one year of teaching experience was included; in a few cases (20 percent) there were as many as 15 or 18 years of experience.

The same rating techniques of teacher-pupil rapport were employed as in all previous studies by the writer (1, 3, 4). The three criteria used were ratings by (1) the principal, (2) the pupils, and (3) the writer, who was the classroom observer. For obvious reasons, first-and second-grade teachers were not evaluated by their pupils. As in the earlier studies, criterion contamination was avoided by not scoring any of the Inventories until ratings were completed.

Results and Interpretation

Pearson product-moment correlation coefficients obtained by the writer for experienced teachers in the several studies he has made are shown in Table 1. These results are an indi-

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[1] Furman University is a four-year, Baptist-sponsored, liberal arts institution with a student population of approximately two thousand.

cation of the concurrent validity of the MTAI. Correlations with the combined criteria continue to be in the fifties. Of the three criteria, the ratings by the observer remain in highest agreement with MTAI scores. It would seem that there might be a practice effect here. In lowest agreement are the pupils' ratings which continue on a downward trend. A possible explanation, at least in part, may lie in the fact that the two earlier studies utilized only the intermediate grades (4, 5, and 6) for cross-validation purposes. Involved almost entirely were teachers of academic subjects. The two most recent studies included teachers at all grade levels from one through twelve. Thus there were included a number of non-academic teachers in such fields as music, industrial arts, and physical education. Teachers in these areas have not usually scored high on the MTAI. Yet, coaches, band directors, and shop teachers often strike a responsive chord in their pupils who look upon them as models to emulate. This may also partially explain the relatively low correlations between principals' ratings and pupils' ratings in the two most recent studies. Principals, as might be expected, appear to be much more concerned than pupils about cognitive matters such as course content, methodology, and organizational skills. Commendable performance by teachers in these areas is praised by the administrator even though there may be deficiency in temperament and personable qualities. As the writer went from school to school to obtain the ratings, he was often amazed at the discrepancy found between principals' and pupils' ratings. A teacher rated by the principal as highly popular with pupils often proved to be greatly disliked by the pupils. Support thus continues to be given to conclusions reached earlier (1, 4) relative to differences in standards of evaluation of adults and children and the unique contribution of pupils' ratings to a more adequate appraisal of teacher behavior.

Table 3 presents the predictive validity coefficients obtained between the MTAI scores of beginning teacher trainees and teacher graduates and their ratings as experienced teachers. For both the 1967 and 1972 studies results are given with use of the original and modified scoring keys.

In comparing the correlations obtained in 1967 with those found in the present or 1972 study, it will be noted that, in the later study, the original key fares quite well with both beginners and graduates. Also, Table 2 indicates quite substantial intercorrelations among the three administrations of the Inventory, thus confirming the relative stability of item response.

Use of the modified keys in the 1972 study produced somewhat lower coefficients of predictability than it did in the earlier investigation. However, the modified key still fared better than the original key for the beginning trainees. This does not hold true for the modified graduate key. The writer has no explanation for the wide discrepancy between the two studies in the use of the original key for graduates.

Use of the Spearman-Brown formula with alternate items in the 1972 study yielded reliability coefficients ranging from .88 to .95 (See Table 2). As might be expected, the longer original Inventory shows higher reliability.

Conclusion

It would seem that the predictive validity of the Minnesota Teacher Attitude Inventory is sufficiently high to warrant its use in the prediction of teaching behavior from the student to the professional level. It should, of course, be used in conjunction with other aptitude measures for the most effective prediction of total teaching competence. Teaching is a many-sided and complex art, and its assessment should include both cognitive and non-cognitive measures. As one relatively non-intellective measure of teacher acceptance of pupils and children, the MTAI would seem to perform an important function in the prediction of teacher behavior.

Concerning the use of the scoring keys, the results are somewhat equivocal at the present time. It would appear that the modified key for use with beginning trainees in teacher education would be desirable. There is less certainty, however, concerning the use of the modified key with inexperienced teacher graduates. At the present writing it would seem that either the original or modified key would serve a useful purpose. Greater certainty awaits future research, -- and preferably with differing populations.

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Table 1

Correlations Found Between MTAI Scores and Ratings by Principals, Pupils, and Observer for Experienced Teachers in Four Separate Studies *

Factors Correlated	1946 Study N=100	1951 Study N=100	1967 Study N=100	1972 Study N= 96
MTAI scores vs. principals' ratings	.43	.46	.36	.38
MTAI scores vs. pupils' ratings	.45	.31	.24	.23
MTAI scores vs. observer's ratings	.49	.57	.55	.64
MTAI scores vs. three validating criteria (combined equal weights)	.59	.59	.51	.56
Observer's ratings vs. principals' ratings	.48	.43	.64	.45
Observer's ratings vs. pupils' ratings	.33	.22	.34	.48
Principals' ratings vs. pupils' ratings	.39	.39	.11**	.19**

* All correlations are significant at the 5 percent level or better, with two exceptions.
** Not significant.

Table 2

Coefficients of Correlation Suggestive of MTAI Stability
Through Successive Levels of Administration *

Factors Correlated	Original Scoring 1967	Scoring 1972	Modified Scoring 1972
Beginners' MTAI scores vs. graduates' scores	.53	.74	.71
Beginners' MTAI scores vs. field scores	.37	.51	.51
Graduates' MTAI scores vs. field scores	.49	.65	.61
Reliability coefficients:			
Beginners' MTAI scores		.92	.88
Graduates' MTAI scores		.95	.90

* All correlations are significant at the 1 percent level.

Table 3

Predictive Validity Coefficients Found Between MTAI Scores (Original and Modified) of Teachers at Beginning of Training and at Graduation and Their Ratings When Experienced Teachers *

Factors Correlated	Original Scoring		Modified Scoring	
	1967	1972	1967	1972
Beginners' MTAI scores vs. combined ratings	.27	.42	.55	.47
Graduates' MTAI scores vs. combined ratings	.20 **	.58	.57	.55

* All correlations are significant at the 1 percent level, with one exception.
** Significant at 5 percent level.